

Changes since 9/22/10

- Added new language to 1.8.1 that clarifies the section applies to requirements of 25-8, Subchapter A.
- Changed language in 2.4.1.D to underground utility line (with examples for clarification) to align with Code.

Proposed Updates to Environmental Criteria Manual

1.8.0 IMPERVIOUS COVER CALCULATION CRITERIA

1.8.1 Calculations

A. This section applies to the impervious cover requirements of Chapter 25-8, Subchapter A of the Land Development Code. The impervious cover requirements of Chapter 25-8, Subchapter A do not restrict impervious cover on a single-family or duplex lot but apply to the subdivision as a whole.

~~A.B.~~ Impervious cover calculations shall include all roads, driveways, parking areas, buildings, ~~decking concrete, rooftop landscapes~~ and other impermeable construction covering the natural land surface. For an uncovered wood deck that has drainage spaces between the deck boards and that is located over a pervious surface, 50 percent of the horizontal area of the deck shall be counted as impervious. Also, the portion of a site used for the storage of scrap and metal salvage, including auto salvage shall be considered impervious. ~~Swimming pool surface water area for pools which discharge to the storm drainage system shall also be included. Sidewalk impervious cover is not included. Water quality and detention basins, swales and other conveyances for drainage purposes only shall not be calculated as impervious cover.~~ Impervious cover calculations exclude sidewalks in a public right-of-way; water quality controls; drainage swales and conveyances; ponds, pools, and fountains; and areas with gravel placed over pervious surfaces that are used only for landscaping or by pedestrians.

~~B.C.~~ Impervious cover credit shall not be given for ~~p~~ Permeable or interlocking pavers or for existing shall be considered impervious cover; ~~provided, however, except that a maximum of up to 20 percent credit may be given when permeable~~ of the area of the pavers may be excluded in calculating impervious cover if the pavers are approved by the Watershed Protection Planning and Development Review Department in accordance with the LDC Section 25-8-151 (Innovative Management Practices) for recharge enhancement purposes.

~~G.D.~~ For calculation purposes, impervious cover for ~~one (1)~~ single-family or duplex lots shall be assumed as follows:

Lot Area

Impervious Cover

Greater than One three (13) acres or greater	5,000 <u>10,000</u> square feet
<u>Greater than one (1) acre – three (3) acres</u>	<u>7,000</u> square feet
Greater than 10,000 <u>15,000</u> square feet – one (1) acre	3,000 <u>5,000</u> square feet
Greater than 5,750 <u>10,000</u> square feet – 10,000 <u>15,000</u> square feet	2,500 <u>3,500</u> square feet
Less than 5,750 <u>10,000</u> square feet or less	2,000 <u>2,500</u> square feet

2.1.0 GENERAL

The information in this section is intended to define the technical design criteria needed to achieve the landscape policy goals identified in Chapter 25-2, Article 9 in the Land Development Code (LDC). These rules apply to all land located within the city limits and to those projects outside the city limits which have agreed to comply with these provisions as part of a contractual agreement with the City. (This includes some Municipal Utility District (MUD) agreements.) All projects funded by the City of Austin or constructed on behalf of the City of Austin must comply with this section of the ECM.

City Council adopted an ordinance on December 16, 2010 that amended Chapter 25-2, Subchapter C, Article 9 of the Land Development Code to require that commercial stormwater runoff be directed to 50% of required landscaped areas. Undisturbed natural areas and undisturbed existing trees can also be counted toward the 50% requirement as long as no potable irrigation is installed. Section 2.4.9 of this manual explains the requirements of the ordinance and provides guidance on methods of compliance.

~~A list of submittal requirements necessary to show compliance with the landscape provisions of the LDC and these rules is found in the Administrative Criteria Manual.~~

The site plan approval process is outlined in Chapter 25-5 of the LDC. Procedures for inspection and enforcement are also found in Chapter 25-1.

Appeals concerning the enforcement of these rules shall be brought to the Director of the Planning and Development Review ~~Department of Environmental Protection.~~

2.3.2 Not Clarified by Code

Other types of projects are exempt for other reasons. These include:

- A. Projects on federal and state owned land.

B. Carports, canopies and free standing covers supported by columns less than two (2) feet wide and four (4) feet long, unless the structure must comply with Section 25-2-1051 of the LDC, compatibility.

C. ~~Refer to Section 4.2.4 of the Administrative Criteria Manual for the application of landscaping requirements to developed~~ Developed properties which are subject to right-of-way condemnation.

2.4.0 BASIC REQUIREMENTS

The following text explains the basic landscape requirements common to all commercial sites under the jurisdiction of Chapter 7, Article III of the Land Development Code. In addition, there are additional landscape requirements for sites located along Hill Country roadways and in the Waterfront Overlay Combining District are covered in Sections 2.7.0 and 2.8.0 respectively.

Tree preservation required as per ~~the Tree Ordinance~~ Section 3 of this manual (Tree and Natural Area Preservation) shall take precedence over any other requirements in this Section 2.4.0.

2.4.1 Street Yard

D. Street Yard Trees.

Within the area described as street yard in Section 2.4.0 a minimum amount of trees are required to be planted or preserved with at least 60% of the trees planted from the Preferred Plant List (see Appendix N). No tree shall be planted within five feet of ~~a water or a wastewater~~ an underground utility line (e.g., water, wastewater, and stormwater systems) which is in a city maintained easement. Heat absorbing surfaces such as courtyards and the west facing walls of buildings are encouraged to be shaded. A minimum of 50% of the trees required in the landscape yard area, which is not utilized for parking, are to be large shade providing trees or from the ~~List of Native and Adapted Shade Trees~~ Descriptive Categories of Tree Species (see Appendix F).- In areas where utility lines are present or proposed only trees from the Utility Compatible Shade Trees list (see Appendix F) shall be planted with in: a) 10 lateral feet from any overhead distribution conductor; b) 30 to 40 lateral feet from any overhead transmission conductor, unless a more restrictive dedicated right-of-way has been established; c) 10 lateral feet from any underground electric facility. Any plantings near transmission facilities must also allow for required access to the facilities. Variations to these planting distances and species may be made only with the explicit written approval of Austin Energy or the affected utility owner. Planted trees shall be no less than six feet in initial height and no less than one and one-half inch caliper measured at ~~4½ feet above the ground~~ six (6) inches above grade. Caliper measurement of newly planted tree trunks shall be taken six (6) inches above grade up to and including four (4) inch caliper size. If the caliper at six (6) inches above grade exceeds four (4) inches, the caliper should be measured at twelve (12) inches above grade. Refer to American Standard for

Nursery Stock (ANSI) Section 1.1.1.2 Methods of caliper and height measurement. No more than 50% of planted trees will be from the same genus or species (if more than 10 trees are required), as follows:

TOTAL STREET YARD AREA	REQUIRED TREES
1,000 to 10,000 sq. ft.	1 tree/1,000 sq. ft.
10,000 to 110,000 sq. ft.	10 trees for first 10,000 sq. ft. plus 1 tree/2,500 sq. ft. over 10,000 sq. ft.
over 110,000 sq. ft.	50 trees for first 110,000 sq. ft. plus 1 tree/5,000 sq. ft. over 110,000 sq. ft.

E. Existing Tree Credit.

All existing surveyed trees over two (2) inches in trunk diameter or tree clusters of at least four (4) one-inch diameter trees preserved within the street yard boundaries may satisfy these requirements one for one. All trees measuring six (6) inches or more in trunk diameter measured at 4½ feet above the ground shall count double toward satisfying these requirements.

2.4.2 Landscape in Parking Lots

C. Trees in Parking Lots.

One (1) tree must be located within 50 feet of each parking space. A minimum of 80% of the trees required for parking lot areas are to be from the ~~List of Native and Adapted Shade Trees~~ Descriptive Categories of Tree Species (Appendix F). No tree shall be planted within five feet of a water or a wastewater line which is in a city maintained easement. In areas where utility lines are present or proposed only trees from the Utility Compatible Shade Trees list (see Appendix F) shall be planted with in: a) 10 lateral feet from any overhead distribution conductor; b) 30 to 40 lateral feet from any overhead transmission conductor, unless a more restrictive dedicated right-of-way has been established; c) 10 lateral feet from any underground electric facility. Any plantings near transmission facilities must also allow for required access to the facilities. Variations to these planting distances and species may be made only with the explicit written approval of Austin Energy or the affected utility owner. This requirement should also be considered when designating parking lot landscape area (see Figure 2-4 in Appendix V of this manual).

2.4.5 Soil Conditioning and Mulching

- A. A Minimum of 3 inches of organic mulch shall be added in non-turf areas to the soil surface after planting. Inorganic mulch may be used in biofiltration ponds and rain gardens that are designed and maintained in accordance with Sections 1.6.3 and 1.6.7 of this manual.
- B. Non-porous material such as sheet plastic shall not be placed under the mulch.

- C. A minimum of 4" 6" permeable soil, native or imported and meeting the requirements of Standard Specification 601S, shall be required for turf and landscaped areas. ~~The organic matter content of such soils shall be not less than 5% by dry weight.~~
- D. Tree planting areas are to be provided with a minimum of 12 inches of friable native loam soil meeting the requirements of Standard Specification 601S (~~max. 40% clay, minimum 5% organic matter~~). Planting in relatively undisturbed existing native soils is encouraged. Soil to a minimum depth of 12 inches is required within the entire landscape median or peninsula. All other planting areas must have a minimum soil depth of 12 inches within a radius of six feet from the tree trunk. Trees are not to be planted in caliche, solid rock, or, in soils whose texture has been compacted by construction equipment. Areas of compaction which have been subsequently amended with 12 inches of friable native soil are suitable for planting.

2.4.6 Irrigation of Landscape Areas

- A. An area equal to at least 50% of the total required landscaped area on a project must:
 - 1. be undisturbed natural area(s) or undisturbed existing trees with no potable irrigation; or
 - 2. be irrigated by stormwater runoff conveyed from impervious surfaces on the site.

See Section 2.4.9 (*Innovative Water Management for Commercial Landscaping*) of the Environmental Criteria Manual for guidance on how to comply with this requirement.

Since landscaped areas irrigated by stormwater runoff have different plant water requirements, these areas should have separate zone valves and circuits for an automatic irrigation system (refer to Irrigation Guidelines in Appendix O).

- B. Using irrigation methods described in Section E below, the Owner shall be responsible for supplemental irrigation:
 - 1. For the first two growing seasons of a newly planted required landscaped area without permanent irrigation (see Section C below). For the purposes of this section, a growing season shall be defined as spring through fall.
 - 2. Permanently for all newly planted trees in a required landscape area.
 - 3. Permanently for all newly planted required landscaping located in medians, islands, or peninsulas, except as specified in Section C below.

C. Permanent irrigation is not required for newly planted landscaping, other than newly planted trees, if the landscaped area is:

- 1. Receiving stormwater runoff in accordance with Section 2.4.9;

2. Planted with native and/or adapted plants that are drought tolerant (see the Plant Selection and Plant Species sections in 1.6.7.C of this manual for recommendations);
3. Located in areas of the site with low foot-traffic to prevent compaction of the soil; and
4. Providing temporary irrigation for the first two growing seasons.

Although permanent irrigation is not required under these circumstances, all vegetation must be kept in a healthy condition to achieve permanent vegetative stabilization of the site per Section 1.4.7 of this manual. Permanent vegetative cover stabilizes the soil, reduces damages from sediment and runoff to downstream areas, improves wildlife habitat, and enhances natural beauty.

D. No permanent irrigation is required for all or a portion of a required landscaped area that consists of:

1. undisturbed natural area; or
2. undisturbed existing trees.

~~BE. The Owner shall be responsible for the irrigation of all required landscape areas and plant materials; Supplemental irrigation required may be provided~~ utilizing one or a combination of the following methods:

1. An automatic or manual underground irrigation system (conventional spray, bubblers, drip, emitters, drip tubing, porous pipe and the like with turf zones separated from planting zones unless otherwise approved;
2. A hose attachment within 100 feet of all required a landscaped areas and or plant materials where there is no road or parking pavement between the hose attachment and landscaped area or plant and the site plan area is no longer than 0.5 acre; or
3. ~~Landscape areas planted with native grasses and wildflowers may use a~~ A temporary and above ground irrigation system in accordance with the design criteria in Section 25-2-1008 and shall be required to provide irrigation only for the first two (2) growing seasons.

If the site plan area is smaller than 0.5 acres, the site may rely solely on a hose attachment for areas requiring permanent supplemental irrigation, including newly-planted trees. Although the site must still comply with the 50% stormwater irrigation requirement, installation of an underground irrigation system, including bubblers for newly-planted trees, is not required.

F. The irrigation methods used shall:

Provide a moisture level in an amount and frequency adequate to sustain growth of the plant materials on a permanent basis;

Be in place and operational at the time of the landscape inspection unless an alternative method is approved under Section 25-2-1008 of the LDC; and

Be maintained and kept operational at all times to provide for efficient water distribution.

Landscape working plans shall indicate, by a detail a drawing or by specification in a note on the site plan, the nature and location of irrigation which will be used; these should be specific enough to show that adequate irrigation will be provided to all required landscape areas and plant materials and that there is no disturbance to the critical root zones of existing trees.

~~No irrigation shall be required for undisturbed natural areas or undisturbed existing trees.~~

CG. Automatic irrigation systems shall comply with the Irrigation Guidelines. These guidelines shall be noted on the Development Permit (refer to Appendix O) and shall be implemented as part of the landscape inspection.

2.4.9 Innovative Water Management for Commercial Landscaping

City Council adopted an ordinance on December 16, 2010 that amended Chapter 25-2, Subchapter C, Article 9 of the Land Development Code to require that commercial stormwater runoff be directed to 50% of required landscaped areas. There are a number of ways to direct stormwater to landscaping, ranging from simpler solutions like overland flow and disconnected downspouts to more sophisticated designs like rain gardens and rainwater harvesting. Landscaped areas can be—but are not required to be—designed to achieve water quality credit by integrating innovative water quality controls like rain gardens or vegetative filter strips (see Section 1.6.7 of this manual). Undisturbed natural areas and undisturbed existing trees can also be counted toward the 50% requirement as long as no potable irrigation is installed. The following text explains the requirements of the ordinance and provides guidance on methods of compliance.

2.4.9.1 Required Landscaped Area

§25-2-1008 of the Land Development Code requires that an area equal to at least 50% of the total required landscaped area on a project must:

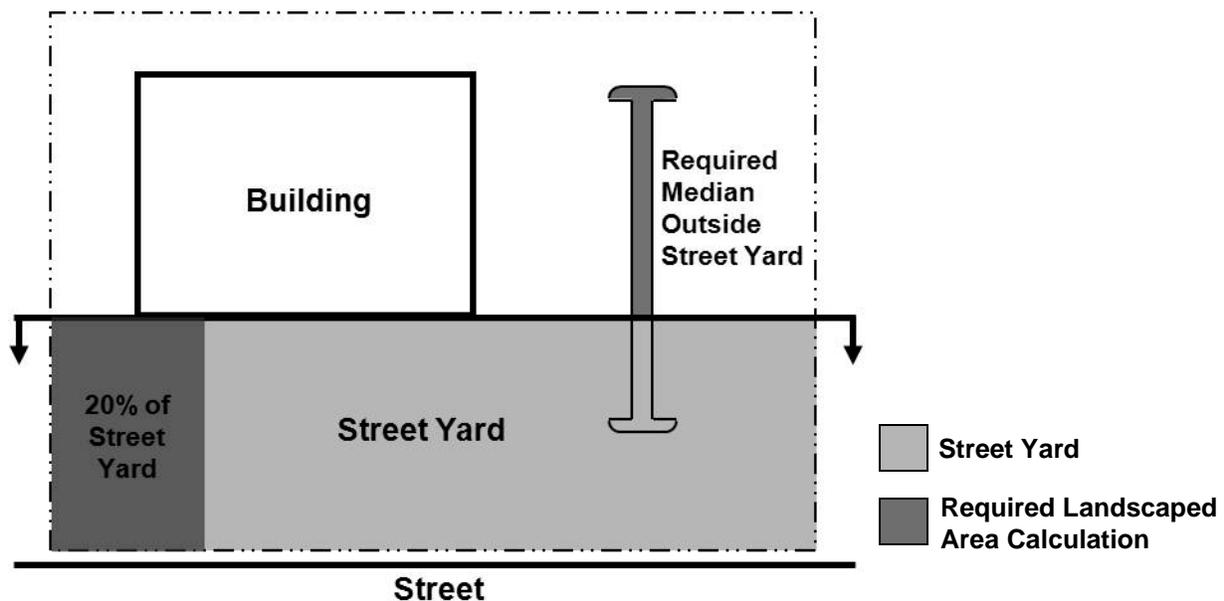
- 1) be undisturbed natural area(s) or undisturbed existing trees with no potable irrigation; or
- 2) be irrigated by stormwater runoff conveyed from impervious surfaces on the site.

For the purposes of this requirement, the required landscaped area is defined as the square footage required for the street yard (20%) plus the square footage of any required islands, medians, and peninsulas outside of the street yard (see formula below). In Hill Country Roadway Corridors, required natural areas also count as part of the required landscaped area. However, the natural areas may qualify as undisturbed natural areas under this section. Additional plantings required for buffering or visual

screening are not included in the calculation of required landscaped area for the purposes of this section.

Square Feet Required for Street Yard (20% of Total) +
Square Feet of Required Islands, Medians, and Peninsulas Outside of the Street Yard =
Required Landscaped Area

Required Landscaped Area x 50% =
Area That Must Be Irrigated with Stormwater or Left Undisturbed



If the amount of landscaping provided exceeds the required landscaped area, the 50% still only applies to the square footage of required landscaped area as defined above. The landscaped areas irrigated by stormwater runoff and/or undisturbed natural areas can be located anywhere on the site – not just in required landscaped areas (e.g. the street yard).

Landscaping within innovative water quality controls that are designed in adherence with Section 1.6.7 of this manual may be used to meet the 50% requirement. This includes irrigation or infiltration areas for retention/irrigation and rainwater harvesting systems. Vegetated areas within detention basins, sedimentation/sand filtration ponds, and wet ponds cannot be used to meet the 50% requirement.

Below is an example of how to calculate 50% of the required landscape area, as defined by this section. The calculations should be entered in Appendix C (*Landscape Calculations*) of this manual. The site in this example is assumed to have 5,000 sf of street yard area. In this example, 600 sf of landscaping would need to be irrigated with stormwater runoff and/or protected as an undisturbed natural area or undisturbed existing tree with no potable irrigation. The three Required square footages listed under

Innovative Water Management in Appendix C (Landscaping Receiving Stormwater Runoff , Undisturbed Natural Areas, Undisturbed Existing Trees) should add up to 50 Percent of Required Landscaped Area (in this example, 600 sf). As stated above, this 600 sf of landscaping is not limited to just the street yard or islands, medians, or peninsulas. It could be located anywhere on the site other than non-innovative stormwater ponds.

Example of Required Landscaped Area:

STREET YARD

	Required	Provided
Street-yard/ Landscape (20%)	1,000 sf	2,000 sf

ISLANDS, MEDIANS, OR PENINSULAS

	Required	Provided
Street-yard area	100 sf	200 sf
Non street-yard area	200 sf	300 sf

INNOVATIVE WATER MANAGEMENT

Required Landscaped Area = 1,000 sf + 200 sf = 1,200 sf

50 Percent of Required Landscaped Area = 600 sf

	Required	Provided
Landscaping Receiving Stormwater Runoff	400 sf	400 sf
Undisturbed Natural Areas	150 sf	150 sf
Undisturbed Existing Trees	50 sf	50 sf
Total	600 sf	600 sf

2.4.9.2 Design Requirements

A. Conveyance.

Stormwater runoff can be conveyed from impervious surfaces on the site to landscaped areas using one or more of the following methods:

- (a) overland flow;

- (b) storm drains;
- (c) downspouts;
- (d) rainwater harvesting;
- (e) retention-irrigation; or
- (f) other methods as approved by Planning and Development Review.

Examples of Types of Conveyance of Stormwater Runoff to Landscaped Areas



Landscaped areas receiving stormwater runoff that are adjacent to buildings, roadways, parking lots, and other structures may require an impermeable barrier to prevent possible damage to these structures due to infiltration. The requirement for impermeable barriers will be at the discretion of the design engineer.

Landscaped areas receiving stormwater runoff that are adjacent to vehicular use areas must be protected by concrete curbs or equivalent barriers in compliance with 2.4.7 of this manual.

Landscaped areas receiving stormwater runoff should be designed to avoid the extended ponding of stagnant water in accordance with Section 10-5-21 of the Austin City Code. Landscaped areas designed as water quality controls will have to demonstrate a specific drawdown time in accordance with Section 1.6 of this manual.

B. Drainage Areas.

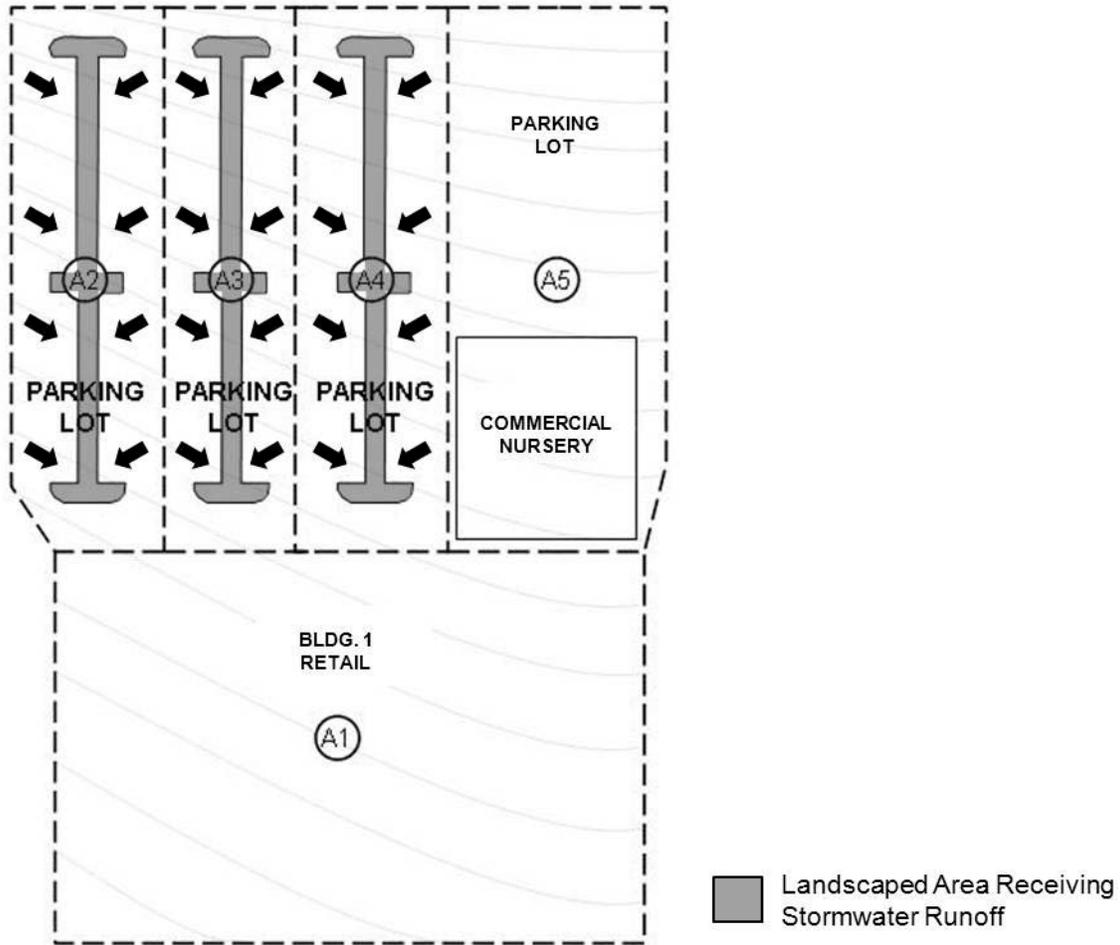
The drainage area used to irrigate landscaping with stormwater must be calculated to provide sufficient water for the landscaped area. To achieve this standard, the minimum drainage area for landscaped areas receiving stormwater runoff shall be a ratio of 1 square foot of drainage to 2 square feet of landscaped area. For example, a landscaped area of 100 square feet would require a minimum of 50 square feet of drainage area. (A larger drainage area than a 1:2 ratio is encouraged—since it would generate more runoff for irrigation—but is not required.)

The maximum drainage area for landscaped areas receiving stormwater runoff is only limited by the need to maintain non-erosive flows or by requirements of Section 1.6 of this manual if the landscaped area is also being designed as a water quality control. The project engineer shall design landscaped areas receiving stormwater runoff such that maximum projected flows and velocities are below erosive values for the particular soil conditions.

To demonstrate sufficient water for the landscaped area, as defined above, the site plan must show the drainage area(s) used to irrigate landscaping with stormwater, including notation of the size of each drainage area and the size of each landscaped area irrigated with stormwater. This information should be included as part of the landscape plan section of the site plan. See below for an example of this notation.

The site plan must also include notation of the land uses on impervious areas within the drainage area(s). Land uses that may generate highly contaminated runoff (see Section D below for more detail) are not allowed within drainage areas unless the landscaped area is designed as a water quality control. These uses/activities are more specific (e.g., trash compactor areas, vehicle washing areas) than general land use groups (e.g., retail, office) and should be shown on the site plan in relation to the drainage area(s). Again, this information should be included as part of the landscape plan.

Example of Site Plan Notation of Drainage Areas to Landscaping



Drainage Area Number	Drainage Area (square feet)	Land Use(s)	Landscaped Area (square feet)	Drainage Area to Landscaping Ratio
A2	42,000	Parking Lot	6,000	7:1
A3	36,000	Parking Lot	6,000	6:1
A4	42,000	Parking Lot	6,000	7:1

The drainage area for a rainwater harvesting system is the drainage area to the cistern. The landscaped area for a rainwater harvesting system is the area irrigated by the cistern as well as any landscaping that is watered by the overflow from the cistern. To receive water quality credit, a rainwater harvesting system must comply with the criteria in Section 1.6.7.D (*Rainwater Harvesting*) of this manual. However, rainwater harvesting does not have to be designed as a water quality control to comply with this section.

C. Landscaping Adjacent to Pedestrian Areas.

Landscaped areas that are depressed below grade within the area of influence of pedestrian areas should have a maximum side slope no steeper than three (3) horizontal to one (1) vertical and a vertical dropoff of no more than two (2) inches. The "area of influence" shall be defined as parking lot medians, peninsulas, and islands as well as the five-foot (5') strip of area parallel and adjacent to sidewalks on either or both sides, if applicable.

If any portion of the area of influence will include side slopes (interim or final) steeper than three (3) horizontal to one (1) vertical, then a pedestrian railing shall be required. If there is or will be a vertical dropoff of more than two (2) inches anywhere in the area of influence, then a pedestrian railing shall be required.

D. Highly Contaminated Runoff.

Unless the landscaped area is designed as a water quality control, the drainage area used to irrigate landscaping with stormwater may not include impervious areas on which the land use or activities may generate highly contaminated runoff. These land uses and activities include commercial nurseries, auto salvage facilities, hazardous materials generators (if containers are exposed to rainfall), vehicle fueling and maintenance areas, vehicle and equipment washing and steam or dry cleaning facilities, and food production/distribution loading dock and trash compactor areas. Note: Some of these land uses/activities may have additional discharge restrictions under Chapter 6-5, Article 5 (*Discharges into Storm Sewers or Watercourses*) of the City Code.

Sites containing one or more of these land uses or activities can still comply with the requirements of the ordinance by using the following options:

- (1) Use runoff from areas of the parking lot that do not include these land uses and activities (e.g., fueling area of service station graded to drain to a hazardous materials interceptor – other areas of the parking lot can still drain to landscaping).
- (2) Use runoff from the roof of the building (e.g., disconnected downspouts or rainwater harvesting system).
- (3) Design the landscaped area as a water quality control (e.g., rain garden).
- (4) Leave natural areas and/or existing trees undisturbed.

E. Edwards Aquifer Recharge Zone.

Unless the landscaped area is designed as a water quality control (or the irrigation area for a water quality control), the drainage area used to irrigate landscaping with stormwater may not include impervious areas used for parking or driving of vehicles if located within the Edwards Aquifer Recharge Zone.

Except for a vegetative filter strip, landscaped areas designed as water quality controls over the Edwards Aquifer Recharge Zone are required to have an impermeable liner

(see 1.6.2.C of this manual). However, landscaped areas receiving stormwater runoff that are not designed as water quality controls do not require an impermeable liner since no significant ponding of stormwater occurs.

Sites located over the Edwards Aquifer Recharge Zone can still comply with the requirements of the ordinance by using the following options:

- (1) Use runoff from the roof of the building (e.g., disconnected downspouts or rainwater harvesting system).
- (2) Design the landscaped area as a water quality control (e.g., rain garden, vegetative filter strip, or irrigation area for retention-irrigation pond).
- (3) Leave natural areas and/or existing trees undisturbed.

2.4.9.3 Undisturbed Natural Areas and Undisturbed Existing Trees

Undisturbed natural areas and undisturbed existing trees can also be counted toward the 50% stormwater irrigation requirement as long as no potable irrigation is installed. Stormwater does not have to be directed to these areas to receive credit towards the 50% requirement, although sites are not restricted from directing stormwater to these areas and are encouraged to restore natural drainage patterns to these areas that may be disrupted by development.

An undisturbed natural area is an area of the site that is preserved in substantially the same conditions of the land which existed prior to any development, including, but not limited to, the same type, quality, quantity, and distribution of soils, ground cover, vegetation, and topographic features. Undisturbed natural areas must be located outside of the limits of construction and comply with the requirements of 2.7.2.F (*Protection of Natural Areas*) of this manual.

Newly planted trees can be located within undisturbed natural areas. However, since newly planted trees require permanent irrigation, the square footage of the critical root zone of these trees must be subtracted from the total square footage of undisturbed natural area when calculating the 50% requirement. See chart below for the square footages of critical root zones for newly planted trees. However, if the irrigation water is non-potable (e.g., reclaimed water), the area of the tree does not need to be subtracted from the undisturbed natural area square footage.

Tree Diameter	Critical Root Zone Diameter	Square Footage to Subtract
1.5 inches	3 feet	9 feet
2 inches	4 feet	13 feet
2.5 inches	5 feet	16 feet
3 inches	6 feet	19 feet
3.5 inches	7 feet	22 feet

4 inches	8 feet	25 feet
4.5 inches	9 feet	28 feet
5 inches	10 feet	31 feet
5.5 inches	11 feet	35 feet
6 inches	12 feet	38 feet
6.5 inches	13 feet	41 feet
7 inches	14 feet	44 feet
7.5 inches	15 feet	47 feet
8 inches	16 feet	50 feet

Undisturbed existing trees must be at least two (2) inches in trunk diameter measured at 4-1/2 feet above the ground. The square footage of the critical root zone of an undisturbed existing tree can be counted toward the 50% stormwater irrigation requirement as long as no potable irrigation is installed and the entire critical root zone is left undisturbed. Non-native, invasive trees listed in Appendix F cannot be counted as undisturbed existing trees toward the 50% stormwater irrigation requirement.

2.4.9.4 Administrative Variance

The director of Planning and Development Review may grant an administrative variance to the requirements. An applicant for a variance must demonstrate that:

- (1) strict compliance is infeasible due to unique site conditions including but not limited to topography, size, shape, and location of existing features such as trees or previous development; and
- (2) the proposed nature and location of irrigation is the minimal departure from the requirements.

The applicant should demonstrate one of the following:

- (1) Greater than 50% of the landscaped area is located upgrade from the impervious cover on the site and would require a mechanical pump system or significant cut and fill in order to irrigate using stormwater. For example: redevelopment projects with existing grading and landscaping or a site sloping down from a road with the majority of the street yard located up at the top of the site.
- (2) The site does not have enough available impervious cover to irrigate 50% of the required landscaped area. For example: sites where use of stormwater runoff from certain areas is restricted (land uses with highly contaminated runoff or pavement over the Recharge Zone).
- (3) Other unique site conditions exist that make strict compliance infeasible.

If the site cannot irrigate an area equivalent to 50% of the required landscaped area or protect an equivalent area of undisturbed natural area or undisturbed natural trees, then the applicant must demonstrate that the proposed nature and location of irrigation for the site is the minimal departure from the requirements.

2.5.0 ALTERNATIVE COMPLIANCE

Section 25-2-1001 of the Land Development Code provides authority for the Director of the ~~Watershed Protection~~ Planning and Development Review Department to accept alternative designs, which prove to be as good or better than strict compliance with the basic landscape requirements.

Alternative proposals should be clearly identified on the landscape plans and the site plan application should include a letter outlining the alternative proposal. (see Appendix E). Review of the alternative proposal will be in conjunction with the site plan review.

To establish some guideline equivalents for the major landscape requirements listed in Section 2.4.0, a list of alternative equivalent ratings are found below. These ratings assign relative values to the landscape elements of a design and should be used when formulating alternative proposals. Each basic requirement that cannot be achieved is assigned a negative point value and may be compensated for with positive equivalents shown in the compensation list. An example using this concept is provided in Figure 2-7 in Appendix V of this manual.

These ratings are intended to provide guidance for proposing alternatives to strict compliance for unusual site-specific conditions. However, other proposed equivalents may be accepted based on extremely unusual conditions, if approved by the Director of the ~~Watershed Protection~~ Planning and Development Review Department.

2.6.0 INSPECTIONS/FISCAL ARRANGEMENTS

2.6.1 Fiscal Posting

~~All restoration must normally be completed prior to the landscape inspection. Projects which have not completed landscaping prior to the landscape inspection shall enter into a Developer's Agreement for Installation and Maintenance of Landscape Materials. The amount of the Developer's Agreement shall be \$2.00 multiplied by 20% of the required streetyard square footage.~~

All required landscaping and irrigation must normally be completed before the landscape inspection. Projects which have not completed landscaping and irrigation before the final landscape inspection shall enter into a Developer's Agreement for

Installation and Maintenance of Landscape Materials. The Developer's Agreement allows up to six months to complete required landscaping.

The fiscal posting amount for the Developer's Agreement shall be based on contractor estimates of current cost for the material and labor for installation of all required landscape and irrigation on the City of Austin approved landscape plan.

The contractor's estimate for landscape shall include plant materials listed on the landscape plan, turf, bed preparation, topsoil, mulch, labor and any native seeding requirements. The estimates must be dated within 12 months of the request for an agreement and must list suppliers who can provide the required items.

The contractor's estimate for irrigation shall include a signed and sealed bid from a licensed irrigator as well as a copy of the landscape irrigation plan signed and sealed by a licensed irrigator. The estimates and plan must be dated within 12 months of the request for an agreement

The estimates must be submitted to the City of Austin Landscape Inspector by a landscape architect for review and acceptance before a Developer's Agreement is written. If fiscal is posted with another City entity (e.g., City Arborist) for portions of the required landscape (e.g., mitigation trees), the amount shall be subtracted from the required fiscal upon proof of payment.

The fiscal is returned only after a concurrence letter for landscape is received and the final inspection for landscape and irrigation is passed.

For projects over 0.5 acres in size and less than one acre in size, the submittal of contractor's estimates by professionals can follow the rules found in Section 2.4.8 of this manual.

2.7.0 HILL COUNTRY ROADWAY LANDSCAPE CRITERIA

2.7.1 Introduction

In addition to the basic landscape requirements, sites located along Hill Country roadways must adhere to additional landscape provisions developed to preserve the unique scenic character of the Hill Country. The following design criteria supplements the code language and quantitatively presents the requirements.

2.7.2 Design Criteria

B. Landscape Area/Preservation of Natural Area.

3. Previously Developed Areas.

Areas of the site which have been developed (prior to the effective date of the ordinance or preceding ordinances) may be used to count toward this requirement if the areas are substantially revegetated with native trees, shrubs and grasses, according to restoration criteria (see Appendix A). Such restored areas must be noted within the Hill Country calculations. Show location, size and species of these plants on all landscape working plans. The determination of density requirements for trees and shrubs (high, medium or low) will be verified by the Department of Environmental Protection Planning and Development Review Department after analysis of the existing natural vegetation remaining on the site or on nearby sites.

8. Revegetation of Sewage Disposal Fields.

Revegetation of disposal field areas must be done according to the restoration criteria in Appendix A. Show location, size and species of these plants on all landscape working plans. The determination of density requirements for trees and shrubs (high, medium or low) will be verified by the Department of Environmental Protection Planning and Development Review Department after analysis of the natural vegetation existing on the site.

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H. Inspections/Developer's Agreement.

~~1. All restoration must normally be completed prior to the landscape inspection. Projects which have not completed landscaping prior to the landscape inspection shall enter into a Developer's Agreement for Installation and Maintenance of Landscape Materials. The amount of the Developer's Agreement shall be \$2.00 multiplied by 20% of the required streetyard square footage. Hill Country Roadway areas shall use \$6.00 multiplied by 20% of the required streetyard square footage.~~

All restoration must normally be completed before the landscape inspection. Projects which have not completed landscaping and irrigation before the final landscape inspection shall enter into a Developer's Agreement for Installation and Maintenance of Landscape Materials. The Developer's Agreement allows up to six months to complete required landscaping.

The fiscal posting amount for the Developer's Agreement shall be based on contractor estimates of current cost for the material and labor for installation of all required landscape and irrigation on the City of Austin approved landscape plan.

The contractor's estimate for landscape shall include plant materials listed on the landscape plan, turf, bed preparation, topsoil, mulch, labor and any native seeding requirements. The estimates must be dated within 12 months of the request for an agreement and must list suppliers who can provide the required items.

The contractor's estimate for irrigation shall include a signed and sealed bid from a licensed irrigator as well as a copy of the landscape irrigation plan signed and sealed by a licensed irrigator. The estimates and plan must be dated within 12 months of the request for an agreement.

The estimates must be submitted to the City of Austin Landscape Inspector by a landscape architect for review and acceptance before a Developer's Agreement is written. If fiscal is posted with another City entity (e.g., City Arborist) for portions of the required landscape (e.g., mitigation trees), the amount shall be subtracted from the required fiscal upon proof of payment.

The fiscal is returned only after a concurrence letter for landscape is received and the final inspection for landscape and irrigation is passed.

**APPENDIX C:
LANDSCAPE CALCULATIONS
STREET YARD**

	Required	Provided
Total Site Area	N/A	_____sf
Total Street-yard Area	N/A	_____sf
Street-yard/ Landscape (20%)	_____sf	_____sf (_____ %)

TREES (street yard)

	Required	Provided
	_____	_____ (Including existing tree credit)
Existing Trees Credit		
2" diameter to 6" diameter	_____ ea. x 1 = _____ ea.	
6" diameter or greater	_____ ea. x 2 = _____ ea.	
Proposed Trees (street yard)	_____ ea.	_____ ea.
Replacement Trees		
Required caliper inches replaced	_____	
Number & Size of replacement tree total	_____	

ISLANDS, MEDIANS, OR PENINSULAS

	Required	Provided
Street-yard area	_____sf	_____sf
Non street-yard area	_____sf	_____sf

INNOVATIVE WATER MANAGEMENT

<u>Required Landscaped Area (Section 2.4.9.1)</u>	_____sf	
<u>50 Percent of Required Landscaped Area</u>	_____sf	
	<u>Required</u>	<u>Provided</u>
<u>Landscaping Receiving Stormwater Runoff</u>	_____sf	_____sf
<u>Undisturbed Natural Areas</u>	_____sf	_____sf
<u>Undisturbed Existing Trees</u>	_____sf	_____sf
<u>Total</u>	_____sf	_____sf

BUFFERING POINTS Required _____ Total Provided _____

	SIZE	QUANTITY	PREFERRED	OTHER	PROVIDED
Larger Trees	_____	_____	_____ pts.	_____ pts.	_____ pts.
Small Trees	_____	_____	_____ pts.	_____ pts.	_____ pts.
Large Shrubs	_____	_____	_____ pts.	_____ pts.	_____ pts.
Medium Shrubs	_____	_____	_____ pts.	_____ pts.	_____ pts.
Small Shrubs	_____	_____	_____ pts.	_____ pts.	_____ pts.
Decorative Wall (3' minimum height)				_____ lf x 3	_____ pts.
Berm (3' min. @ no < 4 : 1 slope)				_____ lf x 1	_____ pts.

ALTERNATIVE COMPLIANCE CALCULATIONS

Landscape area / Street-yard _____ pts.
Islands, medians & peninsula _____ pts.
Trees / Street-yard _____ pts.
Trees/ parking areas _____ pts.
Islands, medians, peninsulas within 50' of parking _____ pts.
Trees within 50' of parking _____ pts.
Total Negative _____ pts.

ALTERNATIVE COMPLIANCE - COMPENSATION

_____ % of installed Street-yard trees _____ pts.
_____ % of increased Buffering _____ pts.
_____ Other (specify) _____ pts.
Total Compensation _____ pts.